

HINTERLAND WHO'S WHO

GROUSE

Canadian Wildlife Service

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Grouse



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Put-put-put-purrrr! Have you heard this sound in the woods in spring? Throbbing like a far-off motor boat, it is the mating call of a male ruffed grouse or "drummer". Quietly stalk him and he will likely be found on a large moss-covered log at the edge of a forest opening. If you beat your fist on the ground you may stimulate him to drum.

The Indians called the ruffed grouse "the carpenter bird", because they thought it drummed by beating its wings against a log. The sound is really made by the bird cupping and rapidly beating its wings against the air. As far as we know, the drumming warns other male grouse to keep away and attracts hens when they are ready for mating.

The ruffed grouse is common throughout most of Canada and much of North America. It does not migrate and, once established, lives all its life within a few acres. Its large size, rich colours, and the explosive burst with which it takes flight are distinctive. As a conspicuous member of our forests and a most popular game bird, it adds very much to the delights of the outdoors.

The ruffed grouse is frequently called "the partridge". This leads to some confusion because of the European, or Hungarian, partridge that has been introduced to Canada. The ruffed grouse is only distantly related to the Hungarian partridge, which is more like a chicken.

Apearance

The scientific name for the ruffed grouse is *Bonasa umbellus* L. Both terms are from the Latin: *Bonasa* means good when roasted (indeed!) and *umbellus*, a sunshade. This refers to the ruff of dark-coloured neck feathers that are particularly large in the male. When he is in display before the female, these are erected and surround his head almost like an umbrella. By nodding his head and ruffs, spreading his tail and strutting, the male identifies himself to the female and en-



courages her advances. The letter "L." after the name signifies Linnaeus, a famous Swedish biologist who founded the present system of naming plants and animals, and who first described accurately and named the ruffed grouse.

The ruffed grouse is about the size of a bantam chicken and weighs one to one and a half pounds. Unlike the chicken, it has a broad flat tail which is usually held down, but may be erected and spread into a half circle.

The dappled and barred plumage ranges in colour from pale grey through sombre red to rich mahogany. In the east most grouse are predominantly grey, while others are red. Greys are in the majority in the central parts of the continent, while on the West Coast most grouse are reddish.

The colours worn by the grouse are related to the kind of habitat in which they are found: the dark colours in dark forest, as on the coast; the greys, in lighter bush. This camouflage helps protect the grouse from their enemies.

Males are hard to tell from females at a distance, but males are larger with larger ruffs and a longer tail; and in the male the broad band of dark colour in the tail is usually unbroken. In the spring, the behaviour of each sex may be quite different.

Origin and distribution

Because all records, including fossil remains, are confined to this continent, ruffed grouse are thought to have originated in North America millions of years ago. A pheasant-like ancestor probably migrated from Asia across land that bridged the Bering Sea.

Once here, the ancestral stock evolved into several lines of chicken-like birds; and one line we recognize today as grouse - the family *Tetraonidae*. Within the family, there are several different kinds of grouse that have adapted to life in various habitats. The ruffed, spruce, and blue grouse live in forest; the prairie chicken, sharp-tailed, and sage grouse are found on the prairie, prairie edge, and desert; and the white-tailed, rock, and willow ptarmigan are found in arctic and mountain tundra.

Some early forms even returned via the land bridge to Asia and Europe, where their descendants can be identified today as the capercaillie, black grouse, and hazel hen. While different in many ways and widely separated geographically, the grouse of the world show their common evolutionary origin by sharing fundamental features of their biology. For example, all male grouse seem to flutter their wings loudly during sexual display.

The differences among grouse can be explained by the way each has become a specialist in its particular habitat. Thus, the ruffed grouse is adapted to a life in hardwood bush and forest - its beak, legs and wings, and gut are adapted to permit it to feed as a browser on buds, leaves, and twigs. The bird is an excellent climber among

slender branches and on thin, yielding stems; and this possibly explains why, among the grouse, it is relatively small, with long neck, limbs, and toes. This grouse is expert at short, rapid, twisting flights, and can actually hover and make complete turns in the air – all handy traits for flying through thick bush. However, it is essentially a ground-dwelling bird.

The ruffed grouse is found wherever there are even small amounts of broad-leaved trees, especially aspen, birch, and willow, that provide the buds which are its staple winter food. And since deciduous forest occurs right across Canada from east to west, from Alaska to deep into the United States below and east of the Great Lakes, the ruffed grouse is widely distributed indeed.

The deciduous trees, important as food and shelter to the ruffed grouse, frequently occur in the early stages of forest regeneration after logging and fire. It is likely that we have more ruffed grouse now than before the white man came, because much of our coniferous forest has been cut or burned, and succeeded by aspen and other trees favoured by grouse. As these young forests grow and change from a mixture of coniferous and deciduous trees to mostly conifer, ruffed grouse populations will decline and in some places disappear. A return of large areas of old conifer forest to youth by cutting and burning, or natural catastrophe, brings back the grouse.

Life history

The life of a ruffed grouse takes its measure from the seasons; and through the year individuals make the best of what is possible. Spring is mating time. The male drums or advertises himself from a number of drum posts, usually old logs. He establishes himself among other male grouse by drumming and fighting, and stays on his territory throughout his life. Other males are chased away, and females are courted on the areas occupied by established males. Near their display posts, males find all the other requisites for life, such as roosts, shelter from weather and predators, food, and places to dust-bathe.

The hens in spring must find the food to make good eggs that will produce healthy young. Like the males, hens live alone and are spread through the forest; but, unlike them, they do not display themselves, and they move over a larger area. Wildlife biologists who have attached small radio transmitters to the backs of hens have found that hens cross trails with each other and may travel through the territories of several males and mate with several others. When they are ready to mate, hens are attracted by a drummer and will mate with him. Both males and females mate with whatever grouse presents itself at this time.

After mating, the hen selects a nest site which may be some distance from her mate and even on the territory of another male. Her nest is always on the ground and usually at the base of a

tree, stump, or rock, close to an opening and in forest that provides shelter.

The nest is simply a shallow bowl in the ground, lined with whatever is at hand and feathers from the hen. She lays from 7 to 14 eggs, and incubates them from 22 to 24 days. Most nests hatch in early June. Only one clutch is produced a year, although some hens will lay again if their first set of eggs is destroyed early in incubation. Most of the hatch in an area comes within a very few days. This timing possibly reflects the way the production of eggs is geared to the growth of new vegetation in spring.

A nest of eggs, once discovered, is easy prey for a number of birds and mammals that take the eggs for play or food. The hen will sit still on her nest almost until you touch her. She usually leaves the nest to feed in the early morning and late evening, when the uncovered eggs are hard to see. This behaviour and her camouflage of plumage are most effective, and relatively little mortality to grouse occurs through the destruction of nests.

The hen leaves the nest with her young within a day after they have hatched. The brood may then set out and travel a long distance before settling down to live upon a relatively small brood range. It appears that the hen seeks out an area that is best for the survival and growth of the young. The brood lives as an independent group, although they may pass males and other broods as they travel about.

The hen and chicks behave in many ways that protect the young, particularly before they can fly. For example, when startled by intruders the hen directs attention away from her chicks by hissing, clucking, and dragging one wing as if it were broken. She appears quite helpless and a ready meal. Try to catch her and she bursts into the air and away. Meanwhile the chicks have burrowed deeply into the litter of the forest and vanished.

Throughout the summer the chicks grow rapidly in size, weight, and plumage. They feed heavily on insects at first but always take succulent vegetation; and by August they enjoy a diet of a variety of flowers, soft leaves, berries, and some seeds. Clover is particularly attractive to broods of grouse, and they frequently find this plant along old roads through the forest. It is here that many young grouse are taken by hawks and hunters.

Starting in June, the old birds gradually moult and replace all their feathers. It is not unusual to see a grouse in late June without a tail at all! The chicks replace their natal down with a rough, poor-quality juvenile coat, then replace this with the yearling plumage by 16–17 weeks of age. This plumage is generally similar to that of the adults.

The early mortality of grouse chicks may be very high. Within a week or two after hatching, half the hens may lose all their young and the remainder may have broods about half the size of

the clutch. Recent studies suggest that the early mortality may be largely due to the kind of eggs produced by the hen. This, in turn, is influenced by her diet in winter and early spring, when she stored within herself the food reserves of her unhatched chicks.

Other mortality to young grouse is caused by accidents, predation by the fox, goshawk, and great horned owl, and diseases such as a damaging stomach worm, *Dispharynx*, which gets into grouse by way of wood lice they take as animal food. Young and old grouse may carry a number of other worms in their intestines and malaria-like parasites in their blood. These are usually harmless to the grouse. Very rarely are any diseases of grouse harmful to humans.

In autumn, when the young are almost fully grown, there is another period of relatively intense activity in the life of grouse. Males begin to drum again, and broods frequently break up as young grouse disperse throughout the forest, seeking a place of their own to live. If new grouse are driven away by established birds, they may never find a home and may die. Others may establish themselves on the territories of old birds which die.

The established birds are secure because they have obtained a place that will provide food, and shelter from weather and predation. The displaced grouse, usually young, are forced into habitat where food and cover are inadequate and are therefore "doomed to die". These grouse are an expendable surplus and may be harvested by hunters without harm to breeding stocks.

The winter may be a hard time for grouse, especially for those that do not become established on an area in fall. In winter, broad-leaved foliage is much reduced or eliminated, exposing grouse to predators as well as forcing them onto their staple winter diet of buds and twigs.

The ruffed grouse is equipped to handle winter weather, but extreme cold and wind with little snow may cause heavy mortality. Where the snow is deep, soft, and persistent, grouse travel over it with the help of their "snowshoes" - lateral extensions of the scales of the toes. They also burrow into the snow, which keeps them warm and protects them from predators.

A good winter is one with soft, deep snow that lasts. Should there be little snow or hard crust and long periods of cold and wind, grouse cannot find adequate protection. They are forced to seek shelter in clumps of thick conifer. Under these conditions grouse lose weight and suffer heavy mortality to predation. A shortage of food and bad weather may cause some grouse to die.

Observing grouse

Try grouse watching and then try to explain some of the things you observe. It is a fascinating pursuit. If you search carefully through the forest you are bound to find many evidences of ruffed grouse if they are there at all. From these

observations you can build up some idea of the activities of grouse.

Grouse droppings look like those of chickens. Drum logs are easily identified by the piles of droppings on them. Droppings and feathers show where grouse have been, roosted, or paused in hiding. Where there is sand and rotting wood, grouse will make depressions and tracks which show their dust bathing and passage. In winter, tracks and roosts in the snow and bits knocked from trees are added to the usual clues which show the presence and activity of grouse.

Management

Grouse populations are sparse in some regions and dense in others. They also may fluctuate between abundance and scarcity in the same area. These fluctuations still need better explanations. Dense and relatively stable grouse populations seem to occur most frequently in forests on rich soils. This may be explained by the better quality of food and shelter available for grouse in these forests.

The control of predators and disease does not offer much hope of increasing numbers of grouse. Hunting by humans has little effect on numbers. Most hunting is directed against young birds along the edges of roads and in openings and many of these will die anyway. Other, older and established grouse are deeper within the forest, where few hunters go.

Co-operation between forestry and wildlife managers is more likely to ensure that this attractive bird will remain abundant. By selective cutting and burning we can harvest the forest and create habitat productive of grouse.

Reading list

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How does the Canadian Wildlife Service fit into the national wildlife picture?

The Canadian Wildlife Service carries out both wildlife research and management. As a branch of the Department of Indian Affairs and Northern Development, it is entrusted with federal responsibilities for wildlife, a renewable resource of ever-increasing importance to the national welfare and economy.

Written for the Canadian Wildlife Service by Dr. J. F. Bendell. Photo by Paul Pohlman.

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